

REMARKS

In the Office Action, claims 1, 7-14, 20-26, 34, 38, 41, 42, 55-57 and 60-65 were rejected and claims 2-6 and 15-19 were objected to. Claims 27-33, 35-37, 39, 40, 43-54, 58 and 59 were allowed. By the present Response, claims 1, 3, 4, 6, 9, 11, 13, 14, 16, 17, 19, 22, 27, 34, 39, 40, 55, 57, 60 and 62-65 are amended and claims 2, 15, 26, 38, 56 and 61 are canceled. Upon entry of the amendments, claims 1, 3-14, 16-25, 27-37, 39-55, 57-60 and 62-65 will be pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Applicants respectfully submit that claims 3, 4, 6, 16, 17, 19 and 67 are amended to correct the dependencies of these claims in view of the amendment and cancellation of other claims. Claim 11 and 40 are amended to correct typographical errors. Also, claims 27 and 39 are amended to overcome certain informalities and to particularly recite the claimed subject matter.

Objections to the Specification

The Office Action summarizes specification as objected to as failing to provide proper antecedent basis for the claimed subject matter. Further, the Examiner stated that the subject matter of claim 48 was not found in the specification. The Examiner also stated that there was no clear teaching in the specification that the morphology can be a combination of the three recited shapes.

Applicants respectfully submit that paragraph [0028] is amended to include subject matter of original claim 48. In particular, the penultimate sentence of paragraph [0028] now recites a fuel, wherein the fuel is a carbon source.

Further, Applicants respectfully submit that a passage of paragraph [0018] is amended to address the Examiner's objection regarding the teaching that the morphology can be a combination of the three taught shapes.

Rejections Under 35 U.S.C. §112

The Office Action summarizes claims 15-17, 19 as objected to under 37 C.F.R. §1.75 as being substantial duplicates of claims 27-29 and 31. Further, the Office Action states that claims 41 and 42 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Further, the Office Action summarizes claims 9, 13, 22, 26, 34, 38, 55-57 and 60-65 as rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. All of the claims are believed to be patentable for the reasons summarized below.

Independent claim 14 and claims depending therefrom

Independent claim 14 has been amended. The amended claim recites the morphology of the nanoparticles which is not recited in claim 27 and also covers a value of quantum efficiency which is not recited in claim 27. Claim 14 recites, *inter alia*, a plurality of nanoparticles having a predetermined morphology, wherein the predetermined morphology includes one of a spheroidal morphology, an elongated platelet morphology, a rod-like morphology, or combinations thereof. The luminescent nanomaterial has a quantum efficiency in a range from about 80% to about 100%. Hence, Applicants submit that claims 16, 17 and 19 are different from claims 27-29 and 31, and request the Examiner to reconsider the rejection of the claims.

Claims 41 and 42

The Examiner rejected claims 41 and 42 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. In support of the rejection, the Examiner stated that at step b in claim 39, the step of forming a homogenized precursor solution, includes the steps of forming a lanthanide nitrate, but that paragraphs [0026]-[0027] and figure 5 teach that this step occurs during the step of providing the precursor.

Applicants respectfully submit that claims 41 and 42 do not contradict the specification in that claims 41 and 42 recite the step of forming a homogenized precursor solution of at least one lanthanide metal group precursor. The step includes reacting the at least one lanthanide metal group precursor and the at least one lanthanide series dopant precursor with a nitrate source to form a lanthanide nitrate, and dissolving the lanthanide nitrate in water.

Applicants wish to clarify that in FIG. 5 as well as in the passages in paragraphs [0026]-[0027] of the specification do not teach that the step of forming the homogenized precursor solution occurs during the step of providing the precursor. In particular, as recited in passages of paragraphs [0025] and [0026], in case of some non-nitrate precursors, after the step of providing the precursors, the next step is to segregate the non-nitrate precursor to further process them to convert them into nitrate precursors. The cited passages read:

The exact methodology adopted in the method depends on the chemical species that are used as precursors. For example, nitrate and non-nitrate precursors of the lanthanide group metal are separated in step 180 so as to allow further processing, depending on the precursor type.

Following separation, a non-nitrate precursor, when used is reacted with a nitrate source, such as, but not limited to, nitric acid and ammonium nitrate in step 190. As a result of this exothermic reaction, the non-nitrate precursor is converted to a lanthanide nitrate.

Accordingly, Applicants respectfully submit that steps 180 and 190 of FIG. 5 occur subsequent to the step 170 which includes providing the precursor. Therefore, the specification and the claims are in agreement and hence, Applicants request the Examiner to reconsider the rejections of claims 41 and 42.

Claims rejections under 35 U.S.C. §112, second paragraph

Further, the Examiner rejected claims 9, 13, 22, 26, 34, 38, 55-57 and 60-65 as rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention.

The Examiner rejected claims 9, 13, 22, 26, 34, 38 and 63 as being indefinite due to the use of both “at least one” and “and combinations thereof. Applicants respectfully submit that the referenced claims have been amended to overcome the deficiency. In particular, the referenced claims now use the language “one of” in conjunction with “or combinations thereof”.

Further, the Examiner rejected claims 55 and 60 as being indefinite with respect to the use of the term “predetermined”. Applicants respectfully submit that the claims 55 and 60 are amended to include the actual ranges suggested by the term “predetermined,” and request the allowance of the rejected claims.

The Examiner rejected claims 56, 57, and 61-65 due to improper antecedent basis for the limitations of these claims. Applicants respectfully submit that the dependencies of these claims have been amended to provide proper antecedent basis, and respectfully request the Examiner to reconsider the rejection of these claims.

Rejections Under 35 U.S.C. §102

The Examiner rejected claims 1, 7-10, 13, 14, 20-23 and 26 under 35 U.S.C. §102(b) as being anticipated by the article by Riwotzki et al. (hereinafter "Riwotzki"). Further, claims 1, 7-11, 13, 14, 20-24 and 26 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,580,490 (hereinafter "Collin").

The Examiner indicated that subject matter of claim 2-6 and 15-19 would be allowable if the claims were rewritten in independent form including all the limitations of the base claims. Applicants respectfully submit that independent claims 1 and 14 are amended to include the allowable subject matter. Therefore, claims 1 and 14 are believed to be in condition for allowance.

For the reason summarized above, Applicants respectfully submit that independent claims 1 and 14 are allowable and respectfully request the Examiner to reconsider rejection of the claims. In response to the rejection of claims dependent from claims 1 and 14, it is respectfully submitted that inasmuch as independent claims 1 and 14 are allowable, claims depending therefrom are allowable by virtue of their dependence from an allowable base claim.

Rejections Under 35 U.S.C. §103

The Examiner rejected dependent claims 12 and 25 under 35 U.S.C. §103 as being unpatentable over Collin. Applicants respectfully submit that claim 25 depends on allowable base claim 1, and claim 25 depends on allowable base claim 14, hence, claims 12 and 25 are believed to be allowable by virtue of their dependence from an allowable base claims.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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